L Number	Hits	Search Text	DB	Time stamp
1	12791	623/$?.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:18
7	739	623/$?.ccls. and hydrogel	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:19
13	31	(623/$?.ccls. and hydrogel) and (calcium adj ion$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:20
19	0	((623/$?.ccls. and hydrogel) and (calcium adj ion$5)) and alignate	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:20
25	0	(623/$?.ccls. and hydrogel) and alignate	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:21
31	59	(623/$?.ccls. and hydrogel) and alginate	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:21
37	49	((623/$?.ccls. and hydrogel) and alginate) and calcium	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:21
43	20	(((623/$?.ccls. and hydrogel) and alginate) and calcium) and ((623/$?.ccls. and hydrogel) and (calcium adj ion$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:25
49	0	((((623/$?.ccls. and hydrogel) and alginate) and calcium) and ((623/$?.ccls. and hydrogel) and (calcium adj ion$5))) and alignate.clms.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:26
55	0	((((623/$?.ccls. and hydrogel) and alginate) and calcium) and ((623/$?.ccls. and hydrogel) and (calcium adj ion$5))) and alginate.clms.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:26
61	0	((((623/$?.ccls. and hydrogel) and alginate) and calcium) and ((623/$?.ccls. and hydrogel) and (calcium adj ion$5))) and calcium.clms.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:26
67	7	hydrogel and alignate and cross$5 and calcium	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:29
73	116	(sodium adj alignate) or (potassi$5 adj alignate)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:30
79	54	((sodium adj alignate) or (potassi$5 adj alignate)) and calcium	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:30
85	2	(((sodium adj alignate) or (potassi$5 adj alignate)) and calcium) and hydrogel	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:39
93	18264	hydrogel	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:40
99	1899	hydrogel and alginate	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:40

105	1274	(hydrogel and alginate) and calcium	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:40
111	1086	((hydrogel and alginate) and calcium) and cross$10	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:42
112	3	(((hydrogel and alginate) and calcium) and cross$10) and (calcium adj releas$10)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:54
118	168	(((hydrogel and alginate) and calcium) and cross$10) and (calcium adj Ion$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:56
124	142	((((hydrogel and alginate) and calcium) and cross$10) and (calcium adj Ion$5)) and three$15	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/02/14 14:58

US 5578314 A	19961126	25	Multiple layer alginate coatings of biological tissue for transplantation		424/424	264/4.1 ; 424/423 ; 435/1.1 ;	Cochrum, Kent C. , et al.
US 5587175 A	19961224	11	Medical uses of in situ formed gels		424/427	424/430 ; 424/436 ; 424/486	Viegas, Tacey X. , et al.
US 5658343 A	19970819	14	Areal implant		623/23.72		Hauselmann, Hans Jorg , et al.
US 5855613 A	19990105	20	Retrievable bioartificial implants having dimensions allowing rapid	diffusion of	623/23.72	424/424 ; 435/1.1 ; 435/182	Antanavich, Richard D. , et al.
US 5944754 A	19990831	9	Tissue re-surfacing with hydrogel-cell compositions		623/23.76	602/48 ; 602/49 ; 604/28 ; 60	Vacanti, Charles A.
US 5958443 A	19990928	12	Medical uses of in situ formed gels		424/427	424/430 ; 424/436 ; 424/497	Viegas, Tacey X. , et al.
US 6027744 A	20000222	16	Guided development and support of hydrogel-cell compositions		424/426	623/13.11 ; 623/15.12 ; 623/	Vacanti, Charles A. , et al.
US 6060534 A	20000509	7	Medical devices comprising ionically and non-ionically crosslinked	polymer hyc	523/113	424/422 ; 424/78.17 ; 523/10	Ronan, John M. , et al.
US 6129761 A	20001010	15	Injectable hydrogel compositions		623/23.72	424/426 ; 424/93.7 ; 623/66.	Hubbell, Jeffrey A.
US 6165225 A	20001226	22	Retrievable bioartificial implants having dimensions allowing rapid	diffusion of	623/23.72		Antanavich, Richard D. , et al.
US 6184266 B1	20010206	8	Medical devices comprising cross-linked hydrogels having improved	mechanic	523/113	424/422 ; 424/78.17 ; 523/13	Ronan, John M. , et al.
US 4273734 A	19810616	4	Casting of polyelectrolytes in hydrogel molds		204/483	264/1.1 ; 264/330 ; 264/331.	Seiderman, Maurice
US 4443339 A	19840417	10	Composite materials		210/635	210/658 ; 210/679	Rosevear, Alan
US 4778749 A	19881018	8	Tissue culture and production in permeable gels		435/2	435/382 ; 435/70.21 ; 435/70	Vasington, Paul J. , et al.
US 4902295 A	19900220	8	Transplantable artificial tissue		623/23.72	424/530 ; 424/556 ; 435/178	Walthall, Bennie J. , et al.
US 5084350 A	19920128	9	Method for encapsulating biologically active material including cells		428/402.2	264/4.1 ; 264/4.32 ; 264/4.33	Chang, Thomas M. S. , et al.
US 5089606 A	19920218	15	Water-insoluble polysaccharide hydrogel foam for medical applications		536/54	424/44 ; 424/445 ; 604/85	Cole, Susan M. , et al.
US 5102666 A	19920407	9	Calcium polycarbophil controlled release composition and method		424/487	424/422 ; 424/435 ; 424/440	Acharya, Ramesh N.
US 5464629 A	19951107	7	Method of forming hydrogel particles having a controlled size using	liposomes	424/450	424/489 ; 424/499 ; 428/402.	Monshipouri, Mariam , et al.
US 5502082 A	19960326	18	Low density materials having good compression strength and articles	formed t	521/141	536/3 ; 536/45 ; 536/46 ; 536	Unger, Peter D. , et al.
US 5516532 A	19960514	8	Injectable non-immunogenic cartilage and bone preparation		424/548	424/423 ; 424/426 ; 424/549	Atala, Anthony , et al.
US 5876742 A	19990302	20	Biological tissue transplant coated with stabilized multilayer alginate	coating su	424/424	264/4.1 ; 435/182 ; 435/382	Cochrum, Kent C. , et al.
US 6171610 B1	20010109	22	Guided development and support of hydrogel-cell compositions		424/426		Vacanti, Charles A. , et al.
US 6333194 B1	20011225	30	Hydrogel compositions for controlled delivery of virus vectors and methods	of u	435/450	424/1.25 ; 424/1.33 ; 424/1.5	Levy, Robert J. , et al.

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(FILE 'HOME' ENTERED AT 15:28:36 ON 14 FEB 2002)

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, BIOSIS, MEDICONF'
ENTERED AT 15:28:53 ON 14 FEB 2002
L1 2 S HYDROGEL AND ALIGNATE
L2 735 S HYDROGEL AND ALGINATE
L3 279 S L2 AND CALCIUM
L4 35 S L3 AND THREE?
L5 20 DUP REM L4 (15 DUPLICATES REMOVED)
L6 20 SORT L5 PY

FILE 'STNGUIDE' ENTERED AT 15:37:13 ON 14 FEB 2002

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, BIOSIS, MEDICONF'
ENTERED AT 15:37:46 ON 14 FEB 2002
E PETER MA?/AU
E PETER X?/AU
E MA PETER?/AU
L7 42 S E2
L8 34 DUP REM L7 (8 DUPLICATES REMOVED)
L9 34 SORT L8 PY
L10 4 S L9 AND (HYDROGEL OR ALGINATE)

=> d an ti so au ab pi l10 1-4

L10 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 2001:417069 CAPLUS
DN 135:33965
TI Ionically crosslinked **hydrogels** with adjustable gelation time
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
IN **Ma, Peter X.**
AB Biocompatible **hydrogels**, for: scaffoldings for tissue engineering; cell encapsulation matrixes; injectable bulking materials for cosmetic and functional restorations; controlled release matrixes; gene delivery vehicles; immunoprotection matrixes; immobilization materials; food additives; medical gels; conductive electrode gels; lubricious coatings; film forming creams; membranes; superabsorbents; hydrophilic coatings; and wound dressings. The **hydrogels** include: at least one water-sol. polymer/copolymer; and at least one slow and/or fast dissolving and/or releasing divalent and/or multivalent cation-contg. compd. At least one of the monomers is an acid, and/or contains an acid group or a deriv. thereof, e.g., **alginate**. Such monomer reacts with the cations to form a three-dimensional ionically crosslinked **hydrogel** compn. A method for prepg. such a compn. comprises the step of controlling a rate of gel formation by varying at least one of: soly. of the cation contg. compds.; cation concn.; mixt. of cation contg. compds.; polymer concn.; gelation temp.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001040370	A2	20010607	WO 2000-US31635	20001117

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

WO 0140370

S.Kaushal AU1636

L10 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 2000:798328 CAPLUS
TI Diffusivity of 3D, ionically crosslinked **alginate hydrogels**.
SO Abstr. Pap. - Am. Chem. Soc. (2000), 220th, POLY-232
CODEN: ACSRAL; ISSN: 0065-7727
AU Kuo, Catherine K.; **Ma, Peter X.**
AB Homogeneous scaffolds are necessary in tissue engineering to ensure structural integrity, uniform distribution of the cells, and also uniform porosity throughout the scaffold. Our previous work has demonstrated formation of homogeneous **alginate** gels by a slow gelation system with control over mech. properties and homogeneity. In this work we studied the influence of polymer concn. on the diffusional properties of the homogeneous, ionically crosslinked **alginate** gels. Diffusion expts. were carried out with vitamin B12 and FITC-dextran with mol. wts. of 1355 and 9500, resp. The diffusion coeff. of FITC-dextran through the gels of higher **alginate** concn. was significantly lower than that with lower **alginate** concn. This trend was not seen in vitamin B12 studies. These results demonstrated that structural parameters can be varied to potentially control the diffusivity of large mols. such as proteins or growth factors which are important to cell growth and tissue development.

L10 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 2000:594144 CAPLUS
DN 133:313591
TI Diffusivity of three-dimensional, ionically crosslinked **alginate hydrogels**
SO Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) (2000), 41(2), 1661-1662
CODEN: ACPPAY; ISSN: 0032-3934
AU Kuo, Catherine K.; **Ma, Peter X.**
AB This work show that ionically crosslinked Ca **alginate** gels formed with controllable mech. properties, homogeneity, swelling behavior and permeability can be tailored specifically for tissue engineering or other biomedical applications.

L10 ANSWER 4 OF 4 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:151960 BIOSIS
TI Ionically crosslinked **alginate hydrogels** as scaffolds for tissue engineering: Part 1. Structure, gelation rate and mechanical properties.
SO Biomaterials, (March, 2001) Vol. 22, No. 6, pp. 511-521. print.
ISSN: 0142-9612.
AU Kuo, Catherine K.; **Ma, Peter X. (1)**
AB **Alginate** gels have been used in both drug delivery and cell encapsulation applications in the bead form usually produced by dripping **alginate** solution into a CaCl2 bath. The major disadvantages to these systems are that the gelation rate is hard to control; the resulting structure is not uniform; and mechanically strong and complex-shaped 3-D structures are difficult to achieve. In this work controlled gelation rate was achieved with CaCO3-GDL and CaSO4-CaCO3-GDL systems, and homogeneous **alginate** gels were formulated as scaffolds with defined dimensions for tissue engineering applications. Gelation rate increased with increasing total calcium content, increasing proportion of CaSO4, increasing temperature and decreasing **alginate** concentration. Mechanical properties of the **alginate** gels were controlled by the compositional variables. Slower gelation systems generate more uniform and mechanically stronger gels than faster gelation systems. The compressive modulus and strength increased with **alginate** concentration, total calcium content, molecular weight and guluronic acid (G) content of the **alginate**. MC3T3-E1 osteoblastic cells were uniformly incorporated in the **alginate** gels and cultured in vitro. These results demonstrated how **alginate** gel and gel/cell systems could be formulated with controlled structure, gelation rate, and

mechanical properties for tissue engineering and other biomedical applications.

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L1 2 S HYDROGEL AND ALIGNATE
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L5 20 DUP REM L4 (15 DUPLICATES REMOVED)
L6 20 SORT L5 PY

=> d an ti so au ab pi 4 5 15 20

L6 ANSWER 4 OF 20 SCISEARCH COPYRIGHT 2002 ISI (R)
AN 95:439375 SCISEARCH
TI DENSITY DISTRIBUTION OF **CALCIUM**-INDUCED **ALGINATE** GELS - A NUMERICAL STUDY
SO BIOPOLYMERS, (JUL 1995) Vol. 36, No. 1, pp. 17-41.
ISSN: 0006-3525.
AU MIKKELSEN A (Reprint); ELGSAETER A
AB Charged polysaccharides often form **hydrogels** in the presence of cations. In many applications the polymer network density distribution and associated physical properties are of major practical importance. Depending on the detailed conditions, the resulting gel density may vary from fully homogeneous to strongly inhomogeneous.

We have established a simple set of coupled chemical reaction-diffusion equations to model the gelling process of **calcium**-induced **alginate** gels. The necessary algorithms for numerical solution of the resulting simultaneous parabolic differential equations have been developed both for one-dimensional models and **three**-dimensional models with cylindrical or spherical symmetry. The algorithms make use of the Crank-Nicolson implicit finite difference method. The results of the numerical analyses of the gel formation can be divided into several different regimes depending on the physical and chemical parameters of the **alginates** and the cations. The numerical results are in good agreements with reported experimental results. (C) 1995 John Wiley & Sons, Inc.

L6 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2002 ACS
AN 1995:869435 CAPLUS
DN 123:260244
TI Low-density crosslinked porous **hydrogel** polymer materials having good compression strength and articles formed therefrom
SO PCT Int. Appl., 39 pp.
CODEN: PIXXD2
IN Unger, Peter D.; Rohrbach, Ronald P.
AB The title materials are prepd. by dissolving a **hydrogel** polymer selected from **alginates**, gums, starch, dextrins, agar, gelatins, casein, collagen, poly(vinyl alc.), polyethylenimine, acrylate polymers, starch-acrylate polymers, or mixts. or copolymers thereof in a gelling solvent, forming a gel from the soln. into a form, replacing the gelling solvent with a crosslinking solvent using a conc. gradient solvent-exchange process, and treating the gel with a crosslinking agent to form porous bodies with a open-celled **three**-dimensional lattice structure, d. <1.0, surface area .gtoreq.30 m2/g, compressibility .ltoreq.10% yield at 10 psi, and av. pore diam. <100 .ANG.. Thus, 5% aq. Na **alginate** soln. was gelled in 0.2 M CaCl2 soln., formed into cubes, treated with aq. 25% acetone, subsequently treated with aq. 50% acetone, then treated with aq. 50% acetone, finally treated with acetone, treated with a mixt. of 2,4-tolylene diisocyanate and triethylamine, heated 16 h at 100-110.degree.to give a crosslinked **hydrogel** material with apparent bulk d. 0.164, surface area 380 m2/g, pore vol. 2.97 cm3/g, and av. pore diam. 365 .ANG..

S.Kaushal

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9512632	A2	19950511	WO 1994-US12645	19941102
	WO 9512632	A3	19950526		
	W: JP				
	US 5502082	A	19960326	US 1993-148110	19931104
	JP 08505431	T2	19960611	JP 1994-513411	19941102

L6 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2002 ACS
AN 2000:594144 CAPLUS
DN 133:313591
TI Diffusivity of **three**-dimensional, ionically crosslinked **alginate hydrogels**
SO Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) (2000), 41(2), 1661-1662
CODEN: ACPPAY; ISSN: 0032-3934
AU Kuo, Catherine K.; Ma, Peter X.
AB This work show that ionically crosslinked Ca **alginate** gels formed with controllable mech. properties, homogeneity, swelling behavior and permeability can be tailored specifically for tissue engineering or other biomedical applications.

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AN 2001:417069 CAPLUS
DN 135:33965
TI Ionically crosslinked **hydrogels** with adjustable gelation time
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AB Biocompatible **hydrogels**, for: scaffoldings for tissue engineering; cell encapsulation matrixes; injectable bulking materials for cosmetic and functional restorations; controlled release matrixes; gene delivery vehicles; immunoprotection matrixes; immobilization materials; food additives; medical gels; conductive electrode gels; lubricious coatings; film forming creams; membranes; superabsorbents; hydrophilic coatings; and wound dressings. The **hydrogels** include: at least one water-sol. polymer/copolymer; and at least one slow and/or fast dissolving and/or releasing divalent and/or multivalent cation-contg. compd. At least one of the monomers is an acid, and/or contains an acid group or a deriv. thereof, e.g., **alginate**. Such monomer reacts with the cations to form a **three**-dimensional ionically crosslinked **hydrogel** compn. A method for prepg. such a compn. comprises the step of controlling a rate of gel formation by varying at least one of: soly. of the cation contg. compds.; cation concn.; mixt. of cation contg. compds.; polymer concn.; gelation temp.

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PI	WO 2001040370	A2	20010607	WO 2000-US31635	20001117
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	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				

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S.Kaushal